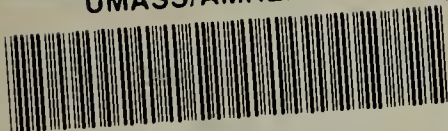


UMASS/AMHERST



312066016681137

## wealth of Massachusetts

## Executive Office of Education

***Charter School Application  
Designated Contact Person***

Please provide the Executive Office of Education with the following information identifying a designated contact person for the group submitting an application for charter school status. This form *must* be filed along with the charter school application no later than February 15, 1994. Please mail all required materials to:

Secretary of Education  
ATTN: Charter Schools  
Executive Office of Education  
One Ashburton Place, Room 1401  
Boston, Massachusetts 02108

Tel: (617) 727-1313

GOVERNMENT PRINTING OFFICE  
FBI COLLECTION  
JAN 15 1994

UNIVERSITY OF MASSACHUSETTS  
DEPOSITORY COPY

Please print or type:

The Harbor Charter School of Science and Mathematics

Name of organization/group filing for charter school status

<b>Contact Person Name:</b>	Pendred Noyce	
<b>Signature:</b>	<i>Pendred E Noyce</i>	<b>Date:</b> 2. / 14/1994
<b>Title:</b>	Trustee, The Noyce Foundation	
<b>Address:</b>	88 Rockport Road	
<b>City:</b>	Weston	
<b>State:</b>	Massachusetts	
<b>Zip:</b>	02193	
<b>Telephone:</b>	617/237-1000	
<b>Fax:</b>	617/237-7987	

Piedad F. Robertson, Secretary of Education  
Executive Office of Education  
One Ashburton Place  
Room 1401  
Boston, MA 02108

February 15, 1994

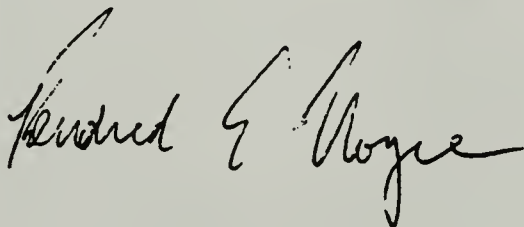
Dear Dr. Robertson:

We are pleased to present the enclosed application for a charter to open a new public school in Boston, the Harbor Charter School of Science and Mathematics. The process of conceiving and preparing this proposal in a short time has challenged the school's six founders to clarify our beliefs and pool our skills, knowledge, and ideas in a way that has been truly exciting.

We are seeking a charter to begin school operation in September 1995. Planning time of at least a year seems to us necessary for creating a new school from scratch, however clear its founders' vision. Thus we are submitting Part I and Part II together at this time in hopes of receiving a determination of charter status next month. Once we have a charter for a 1995 opening in hand, we will be in a strong position to negotiate for a school site and recruit a high quality teaching staff.

Therefore we present this application in a spirit of hopeful anticipation.

Yours sincerely,

A handwritten signature in cursive script, reading "Pendred E. Noyce". The signature is fluid and elegant, with a large initial 'P' and a long, sweeping underline.

Pendred E. Noyce



# Commonwealth of Massachusetts

## Executive Office of Education

### Charter School Application

I/We, the undersigned charter school applicant(s), do hereby certify that the information provided herein and filed with the Executive Office of Education on this the 15th day of February (month) of the year 1994, is to the best of my/our knowledge, truthful and accurate.

(This signature sheet *must* be attached to the application when it is filed.)

Name: Susan B. Cohen

Signature: *Susan B. Cohen*

Date: 02.14.94

Address: 206 Allandale Road

City: Chestnut Hill

State: MA

Zip: 02167

Tel: 617/327-8062

Name: Joyce Newhouse

Signature: *Joyce Newhouse*

Date: 02.15.94

Address: 590 Huntington Avenue

City: Boston

State: MA

Zip: 02115

Tel: 617/427-7227

Name: Pendred Noyce

Signature: *Pendred Noyce*

Date: 02.15.94

Address: 88 Rockport Road

City: Weston

State: MA

Zip: 02193

Tel: 617/237-1090

Name: Ethel Schultz

Signature: *Ethel Schultz*

Date: 02.15.94

Address: 158 Whalers Lane

City: Salem

State: MA

Zip: 01970

Tel: 508/745-2211

Name: Michael B. Silevitch

Signature: *Michael B. Silevitch*

Date: 02.15.94

Address: 360 Huntington Avenue

City: Boston

State: MA

Zip: 02115

Tel: 617/373-5110

Name: Ephraim Weisstein

Signature: *Ephraim Weisstein*

Date: 02.15.94

Address: 6 Watertown Street

City: Lexington

State: MA

Zip: 02173

Tel: 617/861-8844

Name:

Signature:

Date:

Address:

City:

State:

Zip:

Tel:

Name:

Signature:

Date:

Address:

City:

State:

Zip:

Tel:

If more space is required, please attach additional sheets.

Executive Office of Education, One Ashburton Place, Room 1401, Boston, MA, 02108

# **The Harbor Charter School of Science and Mathematics**

**Proposal for a Boston Charter School**

**Submitted February 15, 1994  
to the Executive Office of Education**

Susan Cohen  
Joyce P. Newhouse  
Pendred E. Noyce  
Ethel L. Schultz  
Michael B. Silevitch  
Ephraim Weisstein

# TABLE OF CONTENTS

## Part I

1.) Mission Statement.....	1
A. Philosophy and Description .....	2
2.) School Objectives .....	6
A. Academic objectives .....	6
B. Non-academic goals for student performance .....	9
C. Community Environment .....	9
3.) Statement of Need.....	10
4.) School Demographics .....	12
5.) Recruiting and Marketing plan .....	12
6.) Admissions policy .....	13
7.) Profile of Founding Coalition .....	14
8.) Timeline for a planned opening in September, 1995.....	17

## Part II

9.) Evidence of Support .....	19
10.) Educational Program .....	20
11.) Student Performance .....	35
12.) School Evaluation .....	37
A. School self-assessment and evaluation .....	37
B. Dialogue with parents and the community .....	39
13.) Human Resource Information.....	40
14.) School Governance .....	42
15.) Building Options .....	44

## Appendix - Letters of Support

1. Board of Directors, Massachusetts Pre-Engineering Program
2. John A. Curry, President, Northeastern University
3. Sumner Robinson, President, Massachusetts College of Pharmacy and Allied Health Sciences
4. David Ellis, President and Director, Museum of Science
5. Elmer Freeman, Executive Director, Whittier Street Health Center
6. James Fraser, Director, Center for Innovation in Urban Education, Northeastern University

# **The Harbor Charter School of Science and Mathematics**

**Proposal for a Boston Charter School**

## **Part I**

### **1.) Mission Statement**

The **Harbor Charter School of Science and Mathematics** is a grade 6-12 school characterized by:

- High academic standards and expectations for all children
- Flexibility and enrichment provided by an extended school day and year
- Active, hands-on, integrated learning which emphasizes depth over breadth
- A focus on math, science and technology
- Strategies to help all students transition to a productive life after high school
- Emphasis on motivation, pride in oneself, and planning for the future
- An atmosphere of respect and encouragement for all learners - students and staff.

The founders of the Harbor Charter School are convinced that all children deserve the best opportunity adults can give them to achieve economic self-sufficiency and meaningful participation in American democratic society. The mission of the Harbor Charter School is to provide urban youngsters with the tools of thought and habits of work that they need to become independent, resourceful, and responsible adults. Through equal measures of challenge and support, the Harbor Charter School will inspire young people to acquire the strong academic foundation and grounded sense of self-confidence that will allow them to overcome obstacles raised by prejudice, poverty, or alienation.



**1. A strong academic foundation is an asset that can never be taken away.**

The Harbor Charter School is committed to creating a challenging college-preparatory curriculum for all its students. And because achievement in high school science and mathematics predicts success in higher education as well as opening the door to high-paying jobs in expanding fields, the Harbor Charter School of Science and Mathematics will particularly emphasize these subjects.

**2. Children can best be served by a collaborative effort among schools, parents, industrial and higher education partners, and community organizations.**

The Harbor Charter School will build on the strengths and experience of the Massachusetts Pre-Engineering Program (MassPEP), a collaborative effort of engineering colleges, school systems and industry. For fifteen years MassPEP has run academic enrichment programs for children (especially minorities and girls) in grades 6-12, with continued mentoring through the college years. A key strength of the Harbor School will be the partnerships it forms: with institutions of higher learning such as Wentworth Institute of Technology, Northeastern University and the Massachusetts College of Pharmacy and Allied Health Sciences; with school reform efforts such as the Coalition of Essential Schools; with museums; with health and social service organizations such as the Whittier Street Health Center; and with industry.

**3. Children need a clear vision that their future is rich with possibility.**

Building on the middle college<sup>1</sup> experience, the Harbor Charter School will be located as near as possible to the campus of the Wentworth Institute of Technology (where MassPEP is located) and Northeastern University. From sixth grade on, students will learn to be comfortable with the idea of themselves at college. As they proceed through the school they will increasingly make

---

<sup>1</sup>A "middle college" is a high school located on a college campus. An example in Boston is the Fenway Middle College High School.

use of campus facilities such as classrooms, laboratories, libraries and athletic facilities. Each student will enroll in one or more college-level courses before graduation.

In addition, the Harbor Charter School will collaborate with Wentworth, Northeastern, and if possible with other colleges to develop graduation standards which will automatically qualify graduates for college admission. Thus, Harbor Charter School students will know concretely that a college education awaits them, and a college campus welcomes them.<sup>2</sup>

#### **4. Children learn best when they are most actively engaged.**

Wherever possible, Harbor students will work on real problems that matter to them and that cross usual subject matter boundaries. For example, children might work out the budget for their own classroom materials, or for painting a classroom mural; they might test the quality of tap water at school or at home; they might study geography, biography, and writing in a project gathering and recording histories from recent immigrants to their community.

#### **5. Schools should model the notion that learning is lifelong and personally valuable.**

The Harbor Charter School of Science and Mathematics will strive to make itself a true learning community. An explicit expectation of the school is that everyone involved in it, from students and trustees to teachers, ancillary staff, and parents or guardians, will be both a teacher and a learner. Harbor teachers will have the opportunity to enroll tuition-free in Northeastern classes, and will be encouraged to work toward advanced degrees in their areas of concentration. Students will engage in peer tutoring. Trustees' responsibilities will include direct interaction with students, whether as tutors, mentors, or teachers of mini-courses. Student teachers will assist the teaching staff, come to understand what it means to design a new program, and run their own after-school classes and activities for the children.

---

<sup>2</sup> The school will also help graduates identify scholarship money. The Boston Partnership for Excellence in Education offers last-dollar scholarships to Boston students; Mayor Menino has also proposed a plan for offering scholarships to Boston graduates who show solid academic performance and gain admission to a local college.



**6. Urban youth need safe and worthwhile activity all day and all year.** In order to provide the safe harbor that urban children deserve, the school will be open at least ten hours a day and will operate year-round, combining a strong academic program with enrichment, family support, and recreational activities.. Teachers will work eleven months a year and be compensated accordingly. The school's academic program will run from 8 a.m. to 4 p.m. daily, and after-school programs will run until at least 6 p.m.

These longer-than-usual academic hours will be covered by staggering teacher schedules (teachers will have free time during the day to pursue their own studies) and by giving gradually increasing responsibility to student teachers. Extended academic hours will allow the flexibility for students to explore individual interests or to get needed extra help--a basic premise of the Harbor Charter School being that children who are falling behind will be given extra time and assistance from teachers and peers, not diversion into a less-demanding or remedial track.

MassPEP will organize after-school math and science-based activities running until 6 p.m. daily. Many of these activities will be led by student teachers or by college undergraduates, who may in some cases receive course credit or work-study compensation for designing and delivering "explorer courses" for their younger counterparts (as described in the letter of support from Northeastern President Curry). It is our expectation that this early teaching experience, partially modeled after the national Summerbridge program, will recruit a number of talented undergraduates, including minorities, into teaching careers. Once the school is established, an outreach coordinator will help to develop evening programming geared to parents or families two or three times a week. In many cases this will mean inviting outside agencies, such as for example the Families First parenting education program, to run evening classes on the Harbor Charter School premises.

**7. Preparation for adult responsibilities must start early, and become increasingly intensive over time.** Students, particularly those who are economically disadvantaged, need to be exposed to all of society's career options, not only those that exist today, but also those most likely to develop as we move into the next century. Career awareness activities beginning by the middle school years, mentoring, academics connected to the things that people really do in business and in community life, and finally internships in the 11th and 12th grades -- all will help students to see the connections between school and careers, and will help them overcome assumptions and barriers erected by race, social class, and gender. The flexibility of the Harbor Charter School's schedule will allow students time to immerse themselves in community work or career-based independent projects, or to hold internships or part-time jobs in partner institutions or in industry. The school will build on MassPEP's ties to the business community, and on Northeastern's experience with cooperative education and the Young Scholars program, to find and facilitate meaningful work placements for older students.

**8. A school exists to serve its customers - students and parents.**

Both students and parents will be represented on the Board of Trustees. Parental input will be sought at all stages of school design and administration. Over time, the Harbor Charter School will work to respond to parents' own educational needs by offering evening courses in such areas as Adult Basic Education, strategies for parenting teenagers, and English as a Second Language. These offerings will be developed after surveying parental needs and in accordance with recommendations from parent representatives either on the Board of Trustees or on the Local School Council.

**9. Charter schools have a duty to support, not undermine, the public school system.**

The Harbor Charter School of Science and Mathematics will seek to fulfill this duty by becoming a professional development school. As mentioned above, Harbor will recruit qualified undergraduates into teaching careers through work in the school, and will offer student teachers opportunities for internship. Once its own program is established, the Harbor Charter School will

also seek to meet needs for professional development identified by the Boston Public Schools, particularly in math, science and technology. One early thrust is likely to be the effective use of technology in the classroom. By 1998, we hope to offer Boston teachers (not just Harbor teachers) a menu of professional development experiences which might range from courses to coaching to brief placements with industrial partners to longer residencies based at the school.

In addition, the Harbor Charter School will seek to extend any special dispensations negotiated for its students to other students of the Boston Public Schools. For example, if (as mentioned in the support letter from John Curry, President of Northeastern University) we can negotiate for college admissions standards based on portfolios and performance rather than scores on standardized tests, we will seek to have those same standards extended to students throughout the system.

Finally, the school will contribute to the public education knowledge base by offering the opportunity for carefully-considered research (consonant with the school's goals and approved by trustees, parents, and staff) on teaching methods and effective interventions with children, including research into ways of successfully and equitably engaging girls and minorities in math and science learning.

## **2.) School Objectives**

### *A.. Academic objectives*

Broadly stated, the Harbor Charter School's objective is to provide a college-preparatory program for all students. In addition, all graduates will have acquired the background necessary for further study in scientific or technical fields. Though not all Harbor graduates will study science, and some may not proceed directly to higher education, we expect all to attain the academic foundation needed for career advancement and further study at some point during their lives.



In the summer of 1994, Project PALMS<sup>3</sup> will present its draft curriculum frameworks for math, science, and technology education. Because of the Harbor Charter School's science and mathematics emphasis, and because three of the school founders are closely involved in Project PALMS, we plan to make substantial use of the frameworks in organizing the school's curriculum. The PALMS emphasis on constructivist, activity-based learning, and on integrating science and mathematics with other subjects across the curriculum, closely fit our philosophy. The Harbor Charter School will recruit a director and teachers who share an interest in fleshing out the curriculum frameworks and demonstrating how they can be made to work effectively for urban youngsters.

Beyond the science and math learning goals laid out in the PALMS frameworks, academic objectives for student learning and specific strategies for achieving that learning will be developed in detail by the school's director and teachers.<sup>4</sup> These objectives need to be challenging but achievable, and specific enough to provide real direction to teachers and students yet flexible enough that students will be able to achieve the learning goals in a variety of ways. What follows represents our current thinking, which is necessarily preliminary, and which will be further informed by a year of planning and learning from exemplary programs across the country.

---

<sup>3</sup> Project PALMS, Partnerships Advancing Learning in Mathematics and Science, is a major five-year NSF-funded Statewide Systemic Initiative to improve the teaching and learning of mathematics and science in Massachusetts. One of the key tasks of PALMS is the preparation of Massachusetts's first statewide curriculum frameworks in K-12 science and mathematics, a process which will serve as model for the development of curriculum frameworks in other subjects as mandated by the Educational Reform Act of 1993. PALMS receives additional funding from the Massachusetts Department of Education, the U.S. Department of Education, and the Noyce Foundation.

<sup>4</sup> In developing these standards, school staff are likely to examine goals and graduation requirements of schools that are members of the Coalition of Essential Schools, such as Central Park East in New York or Thayer Academy in New Hampshire. Because of the school's emphasis on preparation for career success, the Board of Trustees is likely to ask school staff to study the core competencies identified in the Secretary of Labor's SCANS report on What Work Requires of Schools (1991). These competencies, which blur the boundary between academic and non-academic goals, include (1) Resources: identifying, organizing, planning, and allocating them; (2) Interpersonal: participating as a team member, exercising leadership, negotiating, teaching others, and working with diversity; (3) Information: acquiring, organizing, and communicating it; (4) Systems: understanding, monitoring, designing and improving them; and (5) Technology: selecting, using, and troubleshooting it.

By the time they pass from eighth to ninth grade, students may be expected to:

- Read at grade level
- Express themselves effectively orally and in writing, for example by writing letters, simple essays or creative pieces, by storytelling, or by using reference materials to prepare short written or oral reports
- Collect, analyze and present simple data both orally and in writing
- Understand and use mathematics to investigate real-life problems, using estimation and computation, and making use of such tools as negative integers, fractions and percentage, equality and inequality, mean and median, rates of change, and variables
- Understand basic principles of physical and life science, and be able to draw on their knowledge of health and human development in making personal decisions
- Use computers for word-processing
- Appreciate art, music, and the humanities; practice some art form for self-expression and be able to draw connections between the arts and mathematics or science

By the time they graduate from high school, students may be expected to:

- Use mathematical strategies to formulate and solve real-life ill-defined problems, using such tools as probability and statistics, data analysis, modeling and functions
- Read and analyze newspaper and magazine articles at the level of *Scientific American* or *The Atlantic Monthly*
- Organize and write a research paper and a persuasive essay
- Be fluent with word-processing, spreadsheets, and computer graphics
- Be able to communicate in a language other than English
- Have a solid foundation in high school earth science, life science, and physical science, and be able to design, execute and analyze a scientific experiment.
- Be familiar with basic world geography and current events, and understand and draw analogies from the history of the United States and at least one other culture or nation
- Create or perform works of art, music, or theater; and individually or as part of a

group present a substantial artistic product which demonstrates connections among the disciplines

It should be emphasized that representatives of higher education will be invited to work with Harbor staff in developing graduation standards.

### *B. Non-academic goals for student performance*

Before graduation, each student will be expected to:

- understand and practice methods of conflict resolution without violence
- develop a habit of healthy sustainable exercise
- perform at least two hundred hours of community service or internship in a work environment
- develop a habit of planning, and present a detailed plan for life after graduation
- demonstrate an appreciation of various cultures

The school's main non-academic goal is to develop in each student a sense of self-confidence, self-respect, hope, and determination.

### *C. Community Environment*

As detailed above, the central message of the school will be respect and high expectations for all learners. The Harbor atmosphere will emphasize cooperation over competition, while also encouraging and making room for students who choose at times to work on their own. All students will be encouraged to ask questions; and persistence, not only quickness, will be celebrated.

Among adults working in the school, we will seek to create an atmosphere of openness, collaboration, thoughtfulness and creativity. Teachers will be regarded as respected professionals, and their assessment of what students need in order to learn will determine schedules and staffing. Many courses will be team-taught. All staff will be encouraged to



communicate with one another constantly, examining their practice, reaffirming common goals, comparing notes on student progress, and coordinating their approach. To facilitate this process, teachers will be provided with at least five hours of common planning time each week.

The school will be small enough that no student will ever feel anonymous. Because of team-teaching and flexible, multi-age grouping, students will have the opportunity to interact with some teachers for more than one year. With its small size, extended hours, varied activities, and emphasis on working together, it is our hope that the Harbor Charter School will develop the atmosphere of a large and supportive family.

### **3.) Statement of Need**

In Boston, nearly one-third of students drop out before graduating from high school. Those that remain may find their future opportunities limited by being sorted into a general or non-college-preparatory track. Many Boston high schools do not offer advanced courses such as physics or calculus to any of their students (Boston Globe, January 25, 1994). Of those public school graduates who do go on to college, many of them, especially minority students, fail to complete the course of study they begin.

Moreover, as detailed in two reports by the Carnegie Council on Adolescent Development, part of the Carnegie Corporation of New York<sup>5</sup>, adolescence is an increasingly difficult time of life for American youth. Half of black and Hispanic adolescents lived in poor or near-poor families in 1988; one in five white adolescents, 30 percent of Hispanic adolescents, and half of black adolescents live in one-parent families. Rates of physical and sexual abuse, early sexual activity, pregnancy, sexually transmitted diseases, HIV infection, drug and alcohol use, suicide and

---

<sup>5</sup> "Turning Points, Preparing American Youth for the 21st Century," 1989, and "Fateful Choices: Healthy American Youth for the 21st Century," 1992.

homicide are all increasing among adolescents.<sup>6</sup> Carnegie "Recommendations on Transforming the Middle School" to address these facts include:

"Ensure success for all students through elimination of tracking by achievement level and promotion of cooperative learning, flexibility in arranging instructional time, and adequate resources, time, space, equipment, and materials for teachers.

"Connect schools with communities. . . through identifying service opportunities in the community, establishing partnerships and collaborations to ensure students' access to health and social services, and using community resources to enrich the instructional program and opportunities for constructive after-school activities."<sup>7</sup>

The Harbor Charter School of Science and Mathematics is designed to provide adolescents this sort of support. Our partnership with the Whittier Street Health Center will assure access to health services, and we will seek to form similar partnerships with other community and social service agencies. Our partnership with MassPEP will provide children with outstanding after-school programming, as well as providing initial links to industry. Support from Northeastern University and the Boston Museum of Science will enrich the school's instructional program, and Northeastern's commitment to providing college access will help provide Harbor students with motivation and hope.

The Harbor Charter School of Science and Mathematics will balance these strategies to support and motivate students with an academic program that is rich, challenging, and inclusive. The school will provide a safe and encouraging environment where everyone, not just students, is expected to learn; personalized attention from teachers, college students, and adult mentors; a flexible schedule; a teaching staff who are committed to trying a mixture of instructional techniques until they find what works; and constant assurance that all children can achieve at high levels.

---

<sup>6</sup> "Fateful Choices" op. cit.

<sup>7</sup> "Turning Points," op. cit.

## **4.) School Demographics**

The school will be located at or very near the Wentworth Institute of Technology, where MassPEP is located, and within easy walking distance of Northeastern University. This location will allow us to take advantage of the partnerships we have developed with these two institutions. It will allow students to become familiar with the college environment; it will allow teachers easy access to Northeastern classes; and it will allow Harbor students to make use of certain college facilities, such as laboratories, libraries, and athletic facilities. Some of these advantages could be maintained, though less easily, if the school were located at a place easily accessible to Wentworth and Northeastern by public transportation.

In terms of ethnic and socioeconomic mix, we expect students served to be a representative cross-section of the students enrolled in the Boston Public Schools. We will particularly seek to serve students who have an interest in science or math but who are judged by their teachers or parents to be at high risk of failing in school or dropping out.

In 1995, the school will open with 80 children in grades six and seven. In 1996 we will add eighth grade, in 1997 ninth grade, and so forth. Eventually the school will have approximately 280 students in grades 6-12, evenly distributed among grade levels.

## **5.) Recruiting and Marketing plan**

Recruiting will be based on two principles: (1) All Boston students should have a chance to apply to the Harbor Charter School; and (2) Students most at risk, for whom the school's programming is most likely to make a difference, must be aggressively sought out and supported in the application process. Marketing to the general population will start with the networks of schools and community organizations affiliated with MassPEP and its K-5 sister organization Camp Tech. To reach the second group, we will ask elementary school principals and teachers,



and staff of community organizations, to identify potential candidates. These should be children deemed on the basis of past performance, erratic attendance, or social problems to be at high risk of dropping out, but whose interest or aptitude for math, science, or even tinkering may provide their strongest link to school.<sup>8</sup> Children so identified and their parents will be personally invited to come to information sessions or to speak one-on-one with school staff to get answers to their questions.

For the more general population mailed announcements will invite potential students and/or their parents to information sessions where they can get a description of the school, a chance to examine curricular materials and scheduling plans, and answers to their questions. We will also seek to provide information through the Parent Information Centers, and will work through community organizations to reach parents who are members of ethnic and language minorities.

In all cases, school staff or undergraduate volunteers will be available to help students and/or their parents complete an application form.

## **6.) Admissions policy**

The Harbor Charter School's basic admission policy is that any child who wishes to attend should have an equal chance at admission. Our job in the admissions process is to provide enough information that students and their parents can make a selection which matches their own needs and plans. Potential students need not demonstrate particular aptitude or past achievement in math or science, but they must be willing to be active participants in a challenging academic program with a science and mathematics emphasis. The application process will include interviews to ensure that potential students understand the focus and demands of the school. All students who complete applications will be entered into an admissions lottery. Once the entering

---

<sup>8</sup> Many people have expressed the concern that charter schools will "cream off" the children with the greatest academic potential, or those with the most involved and aware parents. The plan presented here is an attempt to address that concern.

class has been identified, students may be tested for planning purposes (not for tracking or screening). Students who are found to be ill-prepared for grade level work at the time of school selection will be offered summer enrollment or tutoring before their first September to help them improve their skills.

These policies further the purpose of the school essentially by assembling a group of children whose needs the school is poised to meet. Beyond self-selection based on interest, the school will not seek to sort applicants (except to give preference to siblings of students already attending), unless required to do so to maintain a fair male-female and ethnic balance.

## 7.) Profile of Founding Coalition

The founding group working together to apply for a charter are:

Susan Cohen  
Joyce Newhouse  
Pendred Noyce  
Ethel Schultz  
Michael Silevitch  
Ephraim Weisstein

Brief biographies of the founders follow.

**Susan Cohen** is a Senior Research Associate at the Program Evaluation and Research Group at Lesley College in Cambridge, Massachusetts. Currently she is Project Manager for the evaluation of Project PALMS and for CESAME's Statewide Implementation Program, as well as conducting an evaluation of the Leadership Institute for the National Science Resource Center in Washington, D.C. She has done research in assessment, and authored the Collaborative Learning Assessment Packet for higher education faculty. Ms. Cohen has taught K-8 and supervised Boston Head Start centers. She brings to this project the practical experience of co-founding and directing an alternative elementary school for grades K-5. The school integrated many of the curriculum concepts and theories which support the Harbor School, including the rich knowledge and research base of Piaget, Dewey, Vygotsky, Eriksson and others. Her work included developing theme based, integrated curriculum, supervising staff, and coordinating parent involvement and outreach to the community. Ms. Cohen also served on the Board of Directors of Fayerweather Street School in Cambridge, a nationally known K-8 school well regarded for its work with children and for its workshops for teachers in inquiry based, hands-on learning.

**Joyce Newhouse** is Executive Director of the Massachusetts Pre-Engineering Program (MassPEP), a program designed to increase the participation of minority and female students in science, math, and technical careers. Her work includes developing programs;



hiring and training staff; acting as liaison among school systems, colleges and universities, and private industry; raising funds and overseeing the budget; and developing curriculum. Ms. Newhouse has taught secondary science in the Boston Public Schools, and is certified to teach general science, biology, and social studies. She has worked at the Educational Collaborative for Greater Boston and the Opportunities Industrialization Center, teaching, fundraising, developing jobs, and developing curriculum and an adult education program. As Director of Education and Training for the Grafton Jobs Cops, she supervised a large staff, developed vocational curriculum, and coordinated educational services with non-academic support programs. She has also worked for eight years as a technical and educational consultant for such clients as the Ford Foundation and the National Urban League.

**Pendred Noyce**, the contact person for this proposal, is a physician, educated at Harvard and Stanford University and currently practicing internal medicine at the East Boston Neighborhood Health Center. Since 1991 she has served as a founding trustee of the Noyce Foundation, a national foundation dedicated to improving the academic achievement of public school students in grades K-12. The foundation has strong ties to the Coalition of Essential Schools, Project 2061, and the Southern Maine Partnership, along with other groups involved in restructuring and educational reform. In Massachusetts Dr. Noyce has facilitated the foundation's support for Reading Recovery, Project PALMS, Communities and Schools for Career Success, the Algebra Project, CESAME, RE-SEED, and the New England Regional Center for Interactive Mathematics, along with smaller, school-based projects.

**Ethel L. Schultz** brings to this project broad experience as a science educator. She taught chemistry for many years at Marblehead High School, and was appointed K-12 program administrator for science, mathematics and computer science for the Marblehead Public Schools. For seven years she worked at the National Science Foundation, most recently as Program Director in the Division of Teacher Preparation and Enhancement and as Section Head for the Institutes and Recognitions Section. She has also worked as a research chemist and has held many positions as an active member of the American Chemical Society. Currently she is an independent science education consultant whose clients have included CESAME, PALMS, Project 2061, and Abt Associates.

**Michael B. Silevitch** is a professor of electrical and computer engineering at Northeastern University, where he also serves as Special Assistant to the President for Education. He brings to this project the view of a practicing scientist with a strong record of teaching and research, along with the leadership and team-building skills that allowed him to create two ongoing multisector partnerships, the Center for Electromagnetics Research and the Center for the Enhancement of Science and Mathematics Education (CESAME). For the past five years Dr. Silevitch has increasingly turned his attention to K-12 math and science education, creating not only CESAME, which supports innovative teachers through grants and technical assistance, but also the Young Scholars Program, which places promising high school students in Northeastern science labs; Project SEED, a growing professional development program for middle school science teachers; and Project RE-SEED, which prepares retired engineers to serve as resource agents in science classrooms. He also serves as co-Principal Investigator for Project PALMS, Massachusetts's NSF-funded Statewide Systemic Initiative for the improvement of science and math education.

**Ephraim Weisstein**, currently a Program Manager at Bay State Skills Corporation (BSSC) has an extensive practical background in the public schools as teacher, curriculum developer, and administrator. He has been an elementary school and special education teacher, and has taught social studies and mathematics at the secondary level. He has also worked as a high school counselor and a college instructor. He was the



Director of Danvers Alternative High School, a public school named as a model program by the Massachusetts Department of Education. From 1985-1992, Mr. Weisstein served as the Director of Education at Jobs For Youth, Boston, Inc. The Jobs for Youth Alternative High School program (JFY High), which he initiated, is now part of a U.S. Department of Education national demonstration project for dropout prevention. The interdisciplinary JFY High competency-based curriculum, developed under Mr. Weisstein's leadership, has served as the prototype for many alternative education programs in Massachusetts. At Bay State Skills, Mr. Weisstein is currently responsible for the development and implementation of the Communities and Schools for Career Success, a four-city initiative whose mission it is to fundamentally change the way that schools and communities come together to prepare their youth for life after high school.

Other partners of the effort, who are working with us to refine our ideas and who have agreed to serve on the Board of Trustees, are:

David Blackman	-Director, Comprehensive Regional Center for Minorities, Northeastern University
David Ellis	-President, Museum of Science
Elmer Freeman	-Executive Director, Whittier Street Neighborhood Health Center
Katherine Merseth	-Executive Director, Harvard Project on Schooling and Children; Dean of Program Development, Harvard Graduate School of Education
Linda Nathan	-Director, Fenway Middle College High School
Joan Reede	-Director, Minority Faculty Development Program, Harvard Medical School

The school's founders came together in a series of conversations in the fall and winter of 1993-94. All of us have worked together on education projects in the past, four of us on Project PALMS and all of us on Project CESAME. Six of the initial partners and trustees are current or former teachers; three have been school directors or principals.

As further discussed in Part II, we plan to expand the Board of Trustees to a total of between twelve and twenty members. We intend to invite participation from representatives of Northeastern University and Wentworth Institute of Technology, from community organizations, and from one to two industrial representatives (especially from MassPEP partners). We will also include at least two parents, one student, and one Harbor teacher on the Board.

## 8.) Timeline for a planned opening in September, 1995.

<b>March 94</b>	Meet with staff of community organizations to enlist their support for the school. Identify one or two leaders of community organizations to serve as trustees.
<b>March, April 94</b>	Hold community meetings to gauge community support and seek community input into school design.  Continue to explore options for school site.  Seek planning funds.
<b>April 94</b>	Trustees begin to meet.  Develop plan for recruitment and hiring of director and staff.
<b>April - July 94</b>	Identify candidates for director; choose one by July.  Identify core teachers.  Research model schools and programs.  Strengthen community ties and seek additional input from parents, teachers, community members, students.  Make final determination of school site and develop financing plan for renovations and acquisition or rental.
<b>Summer 94</b>	Design team (teachers, trustees, potential parents) refine vision for school  Seek ties with nearby institutions including colleges, health centers, etc.  Do long term planning, including budget and professional development component.
<b>Fall 94</b>	Complete negotiations for school site. Plan necessary modifications and equipment.  Plan, in detail, school's educational program, curriculum, schedule.  Refine methods of school self-assessment and evaluation.
<b>Winter 95 -</b>	Coordinate plans for student teaching, tutoring, after school activities, facilities use.  Raise money for start-up costs (building modifications, equipment).

Publicize school through MassPEP/CampTech network and conversations with elementary school principals and representatives of community organizations.

**Spring 95**

Recruit students and parents. Interview applicants. Select by lottery.

Plan summer activities for underprepared students.

Complete Charter Application Part III.

**Summer 95**

Continue detailed curricular planning.

Acquire equipment and supplies.

**September 95**

School opens to students.



## Part II

### 9.) Evidence of Support

Because of our tight timeline in preparing this proposal, the founders of the Harbor Charter School of Science and Mathematics have not yet had time to demonstrate the broad community support which we think the school will inspire. We began our coalition-building process by developing support among key partner institutions and organizations, such as MassPEP, Northeastern University, the Massachusetts College of Pharmacay and Applied Health Sciences, the Museum of Science, and the Whittier Street Health Center (See letters of support in the appendix). We have also initiated discussions with other community-based organizations and institutions such as the Roxbury MultiService Center, Freedom House in Dorchester, and the Ecumenical Social Action Council in Jamaica Plain. Over the next two to three months, our plan is to continue and expand these discussions, and then to hold a series of meetings in places where parents and community members will feel welcome and secure. (The Whittier Street Health Center has already offered itself as one such site.) The purpose of these initial meetings will be to present the basic idea of the school to potentially interested parents to gauge the level of community support. At the same time, we will solicit community input to guide us in the further development of our school design. Besides asking potential parents what they want the school to offer their children, we will also begin to explore what educational needs of their own the school might address.

Specific actions planned to gather evidence of community support are:

<b>March 94</b>	Meet with staff of community organizations to enlist their support for the school. Invite one or two leaders of community organizations to serve as trustees.
<b>March, April 94</b>	Hold at least three community meetings to gauge community support and seek community input into school design.

## 10.) Educational Program

*(We begin with the Calendar and hours of operation to clarify the educational program and teaching methods.)*

### *Calendar and hours of operation*

Academic hours will be from 8 a.m. to 4 p.m. daily, and all students will be expected to attend during these hours. The school itself will be open from 7 a.m. to 6 p.m., and on some evenings will remain open later. The number of evening hours will increase as the school develops, over time, activities, classes, and services pitched not only to students but to families and the community as well.

The school will operate in six 8-week blocks during the year. In 1995-1996, the term dates will be:

September 5-October 27	Early Fall
October 30-December 22	Late Fall
January 2-February 23	Winter
February 26-April 20	Early Spring
April 30-June 22	Late Spring
July 2- August 24	Summer

The schedule includes four one-week vacations in December, April, June, and August. Regular legal holidays will also be observed on Columbus Day, Veteran's Day, Thanksgiving, Martin Luther King's Birthday, President's Day, Evacuation Day, Memorial Day, and Independence Day. Thus the school year will consist of approximately 230 days, minus snow days.

Students will be required to attend at least five of the 8-week terms, and most students, especially younger students, will attend all six. However, students in good academic standing who have formulated clear plans and academic goals for a term outside of school will be supported in their

decision. Such outside terms could consist of community volunteer work, internship, or wage-earning work; or it might consist of an immigrant student's travel with his or her family to their native country. For younger students a two to four week block outside of school might be more appropriate, and the school's academic program, as described below, will be fluid enough to accommodate such a schedule. It must be emphasized that the key requirements for time outside of school are good academic standing and a detailed, well-thought-out plan. Upon their return, students must present a product or report on their experience. These requirements help to meet the school's goals in two ways, first by motivating students to achieve academically in order to earn an independent term, and secondly by developing students' skill in planning and reflecting on their learning. These will essentially be practice periods for the post-graduation world of self-direction and adult responsibility.

Two more notes: Even students who elect a full term outside of school will be attending school 190 days a year; and the flexible schedule will allow older students to find employment at times other than the summer, when competition for jobs may be less fierce.

### *Educational Program*

The educational program of the school will be interdisciplinary, thematic, activity-based, and organized in four- to eight-week learning blocks to fit the school's academic calendar. Learning blocks will be planned and delivered jointly by teacher teams. In 1995-96, all four key teachers will be part of a single planning team, while in later years more teams will form.

Underpinning all learning at the middle school level will be two main sets of questions. The first is, "What is the world like, how does it work and how do we describe it?" Exploration of these questions will make use of the disciplines of science, mathematics, technology, and social studies, as well as applied communications skills. By "applied communications skills" we mean that at every stage of the learning process, students will describe their thought processes, present their questions and conclusions, and reflect on their learning both orally and in writing, making



frequent use of graphs, tables, and other mathematical tools of communication. Use of computers will form an integral part of student investigation and communication.

The second question underpinning middle school learning will be, "Who am I and what is my place in the world?" This question will be explored primarily through the humanities, the arts, and physical education, although clearly history and life science will also inform students' understanding. Here there will be room for creative writing, reading of literature, and self-expression through art, drama, music or physical activity. For example, in the learning block on Mysteries described below, students might write a speculative essay or create a collage based on the question, "How did I get to be the way I am?" And one strand in the block on City Design might be students' exploration of what they think is beautiful and why.

There will be a constant interplay between these two underlying themes, and every learning block will include attention to both.

The academic content and approach presented in the learning blocks will be based primarily on two documents. The first of these, currently being developed, will be the PALMS statewide curricular frameworks in science and mathematics. Because of its flexibility, the Harbor Charter School is well-poised to take the frameworks and translate them into practice, testing and making real the tenets of discovery-based, active learning. The second document informing the planning process will be the Project 2061 *Benchmarks*,<sup>9</sup> a deeply philosophical document, based on extensive cognitive and educational research, which addresses the question of what all Americans need to know about science. Project 2061 emphasizes the integration of science, mathematics and technology not only with one another but with history, literature, sports, philosophy, and the arts. The *Benchmarks* present four underlying themes which cut across and unify all these disciplines: Scale, Modeling, Constancy and Change, and Systems. The

---

<sup>9</sup> Benchmarks for Science Literacy, Project 2061, American Association for the Advancement of Science, Oxford University Press, New York, 1993.

*Benchmarks* also refer to the habits of mind which students must develop to become scientifically literate. These habits include (1) honesty, curiosity, and open-mindedness balanced with skepticism; (2) computation and estimation; (3) manipulation and observation; (4) communication skills; and (5) critical-response skills, which include weighing evidence and critically examining arguments and claims.

Teachers will keep these habits and unifying themes in mind as the scaffolding from which to build the activities of the learning blocks. Learning blocks will also be designed to:

- "cover" core facts and concepts appropriate to the students' grade level
- require students to use core skills repeatedly
- allow students to work at different levels on the same topic
- accommodate different student learning styles and interest
- incorporate considerable redundancy as students move between blocks.

Repetition will occur in the context of enrichment, not remediation. This built-in redundancy also means that learning by students who elect to spend a term outside of school will not suffer.

What follows is an example of a year-long set of learning blocks appropriate for the middle school. Sixth and seventh graders in the school's first year of operation could work on these blocks together, at varying levels of sophistication.

In actuality, the Harbor teachers will develop and flesh out their own learning blocks, which may include these or other, comparable, blocks. Teachers will also seek out and incorporate existing curricular materials which can support the blocks they select.

## **1. Mysteries**

Students in this block will read several mystery novels, examine the structure of the genre, and then write their own mystery story or short novel, working alone or in groups. In science, they will explore hands-on mysteries, doing a unit on "mystery powders" or other chemical analysis activities, and trying out the methods used by detectives to analyze evidence gathered at the scene of a crime. During these activities they will begin keeping scientific notebooks, which they will continue to use throughout the year. They will also explore other scientific mysteries, such as, "What happened to the dinosaurs?" or "Where did our solar system come from?", speculating, inventing explanations, and examining how scientists look for and use evidence to modify their own explanations.

In mathematics the theme of mysteries can be used to explore the notion of solving for an unknown. At the intersection of math and language arts, children can explore creating and deciphering codes. They can use the computer to assist in this process, introducing the concept of algorithms and inverse processes.

A career awareness piece for this unit could include conversations with a writer and publisher of mystery novels, a detective working on a real case, a chemist, a forensic pathologist, and a computer programmer.

## **2. Expedition Africa**

This unit is organized around the idea of students going on safari. On the first day, groups of students will be shown a map of Africa and asked where they would like to visit. Each team will then be responsible for planning a trip, including scheduling flights and land travel, calculating costs, planning needed immunizations, and reading guidebooks. Each team will then report on their imaginary safari, describing the geography and history of the countries they visited, the habits of the animals they saw, and the customs of the people they encountered. Art, music, and dance will form an



important part of their presentation. Teachers will facilitate their exploration, and will introduce related topics, including fables and folktales, the origin of man, map skills, and highlights of African history. Mathematical concepts explored will include calculating paths and distances, and an early look at modeling the growth of populations.

Core concepts explored in this unit will include the themes of Scale, Constancy and Change, and Systems. Career awareness activities could include conversations with a travel agent, a development worker, and an importer of artistic or cultural artifacts.; and visits by students to tropical disease research laboratories at the Harvard School of Public Health.

This "Expedition" topic is one that is likely to be repeated from year to year with different continents or regions of the world as destinations.

### **3. Health**

This unit, which addresses an underlying theme of Constancy and Change, will introduce students to elements of anatomy and physiology. Teachers will adapt an existing course on Medicine, Technology and Society<sup>10</sup> to present topics which integrate laboratory experience with history and philosophy of science. Students will choose among reading selections that include classic descriptions of disease by Hippocrates and others, descriptions of the plague by Thucydides and Dickens, and poetry and fiction which address health and sickness. Together they will read *The Microbe Hunters*, grow bacteria on plates and record the effects of different growth conditions and antibiotics.

Adolescent development, substance abuse, sex education, and AIDS education will form parts of the unit. Case studies will be used to motivate students to think in concrete terms

---

<sup>10</sup> Developed by David Form at Minuteman Technical High School in Lexington, MA. Work on this interdisciplinary course and an extension of it, *Biological Events that Changed the World*, developed by Joseph LaPiana at Dracut High School, was supported by grants from the Center for the Enhancement of Science and Mathematics Education (CESAME).

about these issues.<sup>11</sup> Students will do surveys in their own communities, and work with statistics, graphing, and probability as they explore public health issues in regard to subjects such as substance abuse, immunization coverage, and prenatal care.

Career awareness activities will include conversations with various health professionals representatives of the biotechnology industry. Staff from the Department of Public Health may be invited to present to students a selection of real problems and issues that they are trying to address.

#### **4. City Design**

More than the other units, this learning block will start from aesthetics and will involve work with models and systems. The block will begin with the study of architecture.<sup>12</sup> Students will visit buildings, draw and describe them, and explore their own notions of what makes a building beautiful. They will be exposed to a brief history of architecture, and will work with the geometry of basic shapes, relationships of length to area and volume, and concepts of proportion and perspective. They will examine the stability of structures, and will build scale models of buildings and bridges. Their modeling will include learning the basics of electrical circuitry and developing a doorbell and lighting plan for a room. From buildings they will move to the study of cities, starting with history and moving on to consider cities as systems incorporating subsystems such as transportation, water and power supply, political systems, health delivery systems, law enforcement systems, etcetera. Students will learn to read bus schedules and water bills, and they will learn how to contact their City Council representatives. They will use the SimCity computer program to design and manage their own cities. Groups of students

---

<sup>11</sup> An example of the case study approach is provided by an interactive video series on Neuroscience developed by Joan Reede, M.D., a Harbor trustee. The pilot program in the series, very successful with middle school students, concerns the case of a young woman admitted to hospital in a coma because of a drug overdose.

<sup>12</sup> Another CESAME-funded project, the Science Through Experiments Program (STEP) run by Mary Garniewicz and Emily Rose in Worcester, MA, has successfully piloted a unit on architecture for sixth-graders.

will choose a particular Boston system and suggest how it could be improved, taking a multifaceted approach and considering how different parts of the system are likely to interact. Students will invite an elected city official to come to a meeting at which the students will present their proposed improvements and the official will pose additional problems for the students to consider.

Additional career awareness activities could include conversations with an architect, a builder, a civil engineer, and a city planner.

## **5. Space Exploration**

This learning block will be used to explore the topic of scale in time and space, to gain an understanding of the movements of the earth and planets, to explore the concepts of mass and weight, and to imagine what it would be like to try and survive on another planet. Students will start by exploring the working of telescopes, and by observing the night sky. They will identify constellations and read myths about the figures they contain. Students will work with models to understand the movement of the earth and moon and an explanation for the seasons. They will experiment with the acceleration of gravity. At the same time, they will be working with the mathematics of scale, and will be introduced to powers of ten. They will estimate how long it would take to travel to other planets and what supplies and fuel they would consume on the way, and they will calculate how much they would weigh once they arrived. Students will be asked to design and draw a rocket and a space station, and to write an imaginary account of setting up a colony on a planet other than Earth. They will also read popular science fiction stories and critique their portrayal of science; similarly, they will each read a book popularizing astronomy and critique it for clarity and interest.

Career awareness activities could include conversations with a space physicist, a pilot, and a flight maintenance engineer.



## 6. Oceans

Boston's position as a seaport has been important to its political and economic history. This block will include reading poetry and fiction about the sea, listening to sea shanties and Debussy's *La Mer*, looking at paintings of the sea in the Museum of Fine Arts, and developing a series of questions about the sea. Students will learn about the Age of Exploration, and will write an imaginary log of a sea voyage from some time in the past. They will work with globes, nautical charts, and compasses, and some will learn basic concepts of navigation. They will study percentage and proportions, and will investigate concepts of area, volume, depth, pressure, solubility, phase change (freezing, evaporation) and currents. They will measure the tides and hypothesize about what causes them. Students will work with angles and measure paths as they learn about tacking upwind. Some students will focus on life in the sea, working to understand food chains and ecological niches; others may choose to learn more about the mechanics of sailing. An interested group of students might work out the economics of becoming a fisherman; another might follow a chart in constructing a relief map of Boston Harbor. All students will be presented with problems having to do with pollution and testing water quality.

We will try to arrange through local boating clubs for interested students to try their hand at sailing in the Charles River Basin.

Career awareness activities for this unit could include conversations with a member of the merchant marine, a fisherman, or an oceanographer. Interested students might visit a sewage treatment plant, take a tour behind the scenes at the Boston Aquarium, or brainstorm solutions to a problem presented by an environmental engineer.

\* \* \*

This series of sample learning blocks illustrate the school's approach. Staff will choose a rich topic which can accommodate the core concepts and skills which students need to master. Students at different skill or grade levels can tackle different facets of the topic. Other sample learning blocks, some of which might be shorter than eight weeks long, could address such topics as Food, Energy, or Natural Disasters. A theme which might recur several times is comparison of a historical period to contemporary American life, looking at prevailing technology and political and social systems. Each chosen topic will be presented in a way which allows students freedom and creativity, and which encourages students of different levels of sophistication to work together.

Certain changes in the mode of teaching will occur as students move on into high school. For one thing, disciplinary depth and sequential learning will become more important -- for example, the study of American history and civics is likely to require a careful sequential approach. As part of their preparation for college, students need experience with classroom lectures and traditional forms of testing. At the same time, to prepare students for their transition into adult responsibility, they will need to make more and deeper connections to the world outside the classroom. Independent work, community service work and workplace internships will become increasingly important. By the time students reach the 11th or 12th grade, we will seek to have them do "consultancies" in companies or other workplaces. That is, they will work to solve real problems that a company might face, for example by helping a retail outlet design a plan for marketing its product to teenagers, or by collating customer letters and complaints and devising a strategy to respond to them.<sup>13</sup>

---

<sup>13</sup> Bay State Skills Corporation, in its role as evaluator and provider of technical assistance to the Fenway CVS Pharmacy Development Program, is helping to plan student consultancies in CVS retail stores similar to those we are describing here.

Foreign language has not been addressed in the material above. The Harbor Charter School will offer Spanish as its sole language other than English. In the middle school years, the emphasis will be primarily on development of spoken communication and comprehension skills. The approach will be primarily informal. Certain activities and areas in the day will be carried out only or primarily in Spanish. For example, there may be a Spanish -only area of the dining room, or an art activity or elective run entirely in Spanish. Every student will speak some Spanish every day, and students whose primary language is Spanish will be asked to be buddies and coaches to their monolingual peers. Children who are reluctant to try speaking another language will be gently prodded to do so, and reminded that in language as in science, the courage to take risks and make mistakes is what leads to progress. Once the children reach high school age, their foreign language study will be more formalized.

For physical education, our current plan is to explore a relationship with a local center such as the YMCA which might allow Harbor students to make use of their facilities for several hours a week. The emphasis will be on students' developing skills in lifelong sports such as swimming, running, tennis, or pickup basketball.

Plans for special education and bilingual education will be developed as necessary. Professional development for the school's teachers will address differences in learning styles early and repeatedly. The flexibility, open-endedness, and basic philosophy of the school is well-suited to the development of Individual Learning Plans for students with disabilities, and the school's emphasis on hands-on activity and cooperative learning should allow students whose first language is not English to excel in some areas while receiving help from their peers in developing English communication skills. We expect Spanish to be the predominant non-English native language represented in the student body, and we are committed to having at least one fluent Spanish speaker among the initial core teaching staff.



A typical day at the Harbor Charter School will begin at seven a.m., with some students arriving early for doughnuts and orange juice, a chance to chat quietly with friends or staff (one teacher will be present), or a chance to read or do school work. At eight o'clock the school day will officially begin. There will be a school meeting, at which students may participate in a warm-up activity followed either by a group discussion of some current event, a presentation by students, a preview of the day's activities and learning objectives, or a conversation with an adult from outside the school. This could be one of the trustees talking about his or her own current work or learning goals, or it could be a career awareness conversation related to the learning block students are immersed in.

After the school meeting, classes will begin. For most of the day, students will be moving among work in small groups, large group discussions, individual work and consultation with a teacher. Teachers will sometimes present ideas and key learning points to a large group, but long lectures will be rare.

Parts of the afternoon will include special classes in art or music, or special topics in technology or computers. Some of these courses will be taught by undergraduates or student teachers (who may also assist in teaching the core theme-based blocks). Students will also have time for individual reading and writing, for studying with peers, or for getting one-on-one help with homework. The core teaching staff will have staggered schedules to cover the longer school day. At four o'clock core academic instruction will end, but many students will choose to participate in after school activities developed by MassPEP. Other students may choose to work quietly on homework with an adult helper near at hand.

Initially one or two evenings a week, but perhaps more often as interest levels develop, there will be evening programming for parents and families. This programming might include Family Math or Family Science activities, advisory sessions on how to negotiate a way through a maze of social services, or classes in English as a Second Language. These offerings will be arranged

by the school's outreach coordinator, who will work in collaboration with other groups, and who will develop for these programs a funding stream separate from that of the core academic program.

At least twice a week students will meet in small groups for an advisory period with teachers or other mentors. During this period, academic problems or successes and personal issues can be discussed, and strategies for planning and careful decision-making can be reviewed and modeled.

### *Basis for the teaching methods*

Teachers in the school will work as coaches to their students, and students will be encouraged to take primary responsibility for their own learning, choosing directions and setting their own goals in consultation with their teachers. Students will also share considerable responsibility for self-assessment.<sup>14</sup> Learning blocks in the school will be designed according to a constructivist philosophy, which holds that children learn best by building on their prior knowledge through active exploration and reflection on their learning experience. Learning will proceed through multiple activities and multiple sensory modalities converging around the same concepts, so that students hear, see, speak about, write about, touch, and manipulate what they are learning about. And students will spend much of the day working in cooperative groups, as well as in whole-class groups or individually.

All of these teaching strategies can be backed up by educational research. The use of a thematic, interdisciplinary approach where topics can be approached at more than one level of sophistication creates a situation where students can constantly exercise choice within the classroom:

---

<sup>14</sup> The experience of the Narragansett School in Gorham, Maine, demonstrates that children as young as first-graders can develop a habit of honest and perceptive assessment of their own written work when guided to do so by their teachers. (Lynne Miller and Cindy O'Shea, presentation at Noyce Grantees' Conference in Pajaro Dunes, CA, January 1993.)



[Students] express enthusiasm about learning experiences that are complex but understandable, full of rich meanings and discussions of values, require their own action, and those about which they feel they have some choice.<sup>15</sup>

Choice within the classroom means that individual students can pursue their own interests, inspired at times either by something in the curriculum or by something in their own world to follow a certain trail, deepening their understanding in an area of special interest. For one student that might mean reading everything she can find about sharks; for another it might mean doing a series of drawings of different seagoing vessels. The role of teachers in such cases will be to support the student's sudden enthusiasm, to challenge the student to perform high-quality work, and to quietly monitor the student's progress.

A corollary of the concept of student choice-making in the classroom is that, particularly since classes at the Harbor Charter School will not be tracked, teachers will need to pay careful attention to designing alternative approaches to the material for students with different learning styles. When the range of activities offered is rich enough, students can follow their strengths. Perhaps because of this, "evidence [shows] that active learning can be beneficial to all types of learners from all types of cultures."<sup>16</sup> The rich variety of learning activities in different sensory modalities prepared by teachers at the Harbor Charter School will be able to accommodate learners whether their basic learning style is visual, auditory or kinesthetic.

An important tenet of constructivism is that students cannot be assumed to come to a learning situation as blank slates ready for instruction. Rather they come armed with their own "naive theories" about why things happen, and their intuitive, non-scientific view cannot be eradicated by teacher talk, not even by the clearest explanation. To be effective in replacing student

---

<sup>15</sup>"Voices from the Inside," Mary Poplin and Joseph Weeres, The Institute for Education in Transformation at the Claremont Graduate School.

<sup>16</sup> "The Academy: Our Theoretical Base," Portia C. Elliott, Teachers Academy for Mathematics and Science, Chicago, IL.



misconceptions, teachers must give students ample opportunity to express their own conceptual understanding of a topic,<sup>17</sup> and must then present them with a variety of opportunities to explore the topic, including individualized instruction, teaching by "guided discovery", demonstrations and experiments, whole class construction of knowledge, and "teaching with discrepant events (runs contrary to what we intuitively expect and is something we experience ourselves)."<sup>18</sup> Teachers must also provide students with opportunities for creative problem-solving. Increasingly, as Harbor students get older, the problems they work on solving will be real ones gleaned from the world beyond the school walls.

There is an extensive literature on the benefits of cooperative learning. David Johnson refers to over 600 research studies comparing the results of students working cooperatively, competitively, and individualistically, and concludes that, of the three, cooperative learning

is the least used of these teaching procedures, yet is the most powerful way to increase achievement, stimulate cognitive development, increase self-esteem, and promote liking for school.<sup>19</sup>

This is not to say that cooperative learning is appropriate as the only approach for any child. Children also need time to work quietly alone, developing independence and responsibility. Nancie Atwell, in her book on teaching writing to middle school students, emphasizes the importance of creating a classroom where children can move easily from working alone, to comparing notes with a peer, to joining a small work group or consulting with the teacher.<sup>20</sup>

The fact that all adults associated with the Harbor Charter School will be expected to model their

---

<sup>17</sup> "Why Should Mathematics and Science Teachers Be Interested in Cognitive Research Findings?" Jose Mestre, University of Massachusetts, Amherst, Academic Connections, Summer, 1987.

<sup>18</sup> "Alternative Modes of Instruction," working paper for American Chemical Society Task Force on Curriculum, George M. Bodner, Department of Chemistry, Purdue University, West Lafayette, IN.

<sup>19</sup> "Learning Together and Alone," David W. Johnson, Roger T. Johnson, Edythe Johnson Holubec, Cooperative Learning Center, University of Minnesota, Minneapolis, MN.

<sup>20</sup> In the Middle: Writing, Reading, and Learning with Adolescents, Nancie Atwell, Portsmouth, NH: Boynton Cook, 1989.

own role as learners forms part of the school's core philosophy. Support for this notion comes not only from within the educational community, but from the business world. Peter Senge describes the adaptability, high motivation for excellence, and teamwork that occur in "learning organizations" when leaders model and support a process of continuous personal and professional growth for all members.<sup>21</sup>

It is our expectation that in the Harbor Charter School of Science and Mathematics a balanced mix of individual and cooperative learning, adult mentoring, contact with college undergraduates, and the constant example provided by the teaching staff, will create a school culture where learning is valued and learners treat one another with respect and mutual support.

## **11.) Student Performance**

### *A. Assessment of student performance*

Assessment of student performance will directly reflect what is taught in the Harbor Charter School curriculum and will be consistent with the philosophy of the Massachusetts Curriculum Frameworks in Mathematics, Science and Technology. It will facilitate reflection, promote thought, be linked to learning experiences, lead to understanding, and function as a tool for student-teacher collaboration to improve both instruction and learning.

All student assessment will be based on learning goals identified in student-teacher discussions, relating individual learning needs to program intentions. Student portfolios and performance assessment will structure all student assessment, which will be ongoing. There will be reflection points during the year at which both students and teachers will consider the relationship of the learning experiences to the students' learning goals.

---

<sup>21</sup> The Fifth Discipline: the Art and Practice of the Learning Organization, Peter Senge, New York: Doubleday, 1990.

Portfolio assessment will have several stages:

1. Students will meet with teachers at the beginning of each learning block to set individual learning goals. Learning goals will include both skills and content related concepts. Throughout the learning block, students will collect representative work related to their goals and insert it into their portfolios. Portfolios may include work that represents some significant question or issue not identified in advance.

2. At the conclusion of each block, students will review their work and write a narrative describing the significance of their learning experience and how the experience related to their goals. Teachers will also review the portfolio and write a brief narrative describing the students' learning in relation to their goals, noting emergent interests and questions not included in the original goals. Each student will have a safe, accessible space to store the accumulating portfolios throughout the year.

3. The collected portfolios from each learning block will be reviewed at the year's mid-point by students, staff, and parents, to reassess the appropriateness of the original learning goals in relation to student progress. This is an optimal time to add new challenges, address areas needing improvement, and develop a strategy for improving skills and refining concepts.

4. At the end of each year, students will reflect on their cumulative experience, basing their reflections on work samples from the various learning blocks. They will be asked to consider their progress in relation to their learning goals and to identify those learning areas they will work on in the coming year.

In addition to portfolios, teachers will incorporate performance assessment into each learning block, requiring students to communicate their learning to their peers. Students may work together in small groups or individually to present their understanding of the content and to demonstrate their skills. The assessment tasks and problems will be organic to the learning



block, function as learning experiences, and be addressed in the social context of the group. They will provide opportunities for teachers to have immediate insight into students' learning. Students will learn more about each other and about the content, employing a range of skills and concepts. Most importantly, students will be allowed to tailor the type of communication most appropriate for their individual needs, using the type of medium most suited to their particular physical, linguistic and other learning needs. Many of the tasks suggested in the description of the learning blocks, such as writing a fable or an imaginary ship's log, or setting up a test for water quality, could be re-configured as performance assessment tasks. Good performance assessment is indistinguishable from good curriculum. It is the application that differs, permitting a stopping point to reflect on what students are learning so that teaching may be adjusted to address further needs.

Students will of course also take any mandated (or strongly recommended) state tests, especially those specifically developed in concert with the state curriculum frameworks. They will be given occasional traditional essay or multiple choice tests so that they can become familiar with them. These tests will be treated primarily as learning experiences for developing test-taking strategies. In some cases we will seek to further de-mystify them by having students develop test questions of their own.

## **12.) School Evaluation**

### *A. School self-assessment and evaluation*

School evaluation will be consistent with the school's philosophy and approach to curriculum and student assessment. The emphasis will be on internal and external documentation of the school programs. Evaluation will examine the program in relation to its goals and intentions.

Internal evaluation, by which we mean self-evaluation by school staff of their own effectiveness as well as documentation of what they do, will promote the professional development of teachers and staff, documenting their practice and identifying their learning goals. Teachers will keep reflective journals, and from speculations and observations noted in their journals they will identify questions and issues which can form the basis for classroom based research. Teachers will be encouraged to conduct such research as a way of promoting their own professional growth. (An example of such a research issue might be, "How do I respond to student questions? What happens when I respond in different ways? Do I respond differently to different students?") To answer such question teachers will have to negotiate with their colleagues to set aside time for systematic data collection. Together the staff will design a fair system to encourage classroom research without compromising the school's staffing needs.

Internal documentation also includes collecting learning block materials and plans, samples of student products and student assessments, notes of staff meetings, planning materials, and copies of communications to parents and the community.

As part of their internal evaluation, school staff (and in particular the school Director) will be responsible for providing the state with mandated quantitative data relating to such matters as attendance, disciplinary actions, retention, referrals for special education evaluation, etcetera. This data will also be made available to parents.

External documentation will involve bringing in an outside evaluator to document the range of activities, structures and program elements relating to the stated intentions and goals of the school. The external evaluator will consider the internal documentation data and will conduct interviews with a range of school staff, parents, students, and other school related personnel. The evaluator will also observe a sample of classes, school-wide events, staff activities, and interactions with parents. The emphasis will be on deep qualitative evaluation, looking closely at the culture of the school, the nature of the experience for staff, students and parents, and the

school's ability to live up to its philosophy. Among the areas considered will be career preparation, academic achievement, the social atmosphere of the school, the professional development of staff, relations with parents and community, and the effectiveness of governance structures.

#### *B. Dialogue with parents and the community*

Parents will frequently be invited to come into school to look at portfolios and to meet with students and teachers to discuss student work and emerging student interests. In particular, parents will be encourage to take part in the mid-year and end-of-year assessment discussions. Parents who are comfortable writing might contribute to the collective narrative assessment, adding observations about the students' social development, leisure time interests, and other relevant matters.

Parents' own skills and abilities will be respected. Parents may be able to contribute significantly to the range of learning blocks and to career development experiences. The school will ask for information about parent interests and special skills at the beginning of the school year, so that parents can be integrated as much as possible into the life of the school. Parents who wish to interact with the school as volunteers will be welcomed and will be offered tasks that are respectful of their skills. One proviso: children in grades 6-12 often want more autonomy from their parents, and parent involvement in the school needs to be balanced with students' developmental needs.

Parents and community members will also be represented both on the Board of Trustees and on the Local School Council. The school administration will be attentive to recommendations from these representatives about needed dialogue on any areas of parental of community concern.

A final piece of dialogue with the larger community will occur when, toward the end of the school year, school staff gather a random selection of student portfolios and present them in an



open discussion format to a group made up of educators from outside the school, parents, and community representatives. This exercise will allow the school community to examine and reflect collectively on the school's goal for students and on how effectively the school is leading students to achieve these goals.

## **13.) Human Resource Information**

### *A. Selection of teaching and administrative staff*

The Harbor Charter School will seek to recruit and hire the very best teachers and administrator(s) who share the School's vision and philosophy. While the initial staff will be but four full-time teachers (or equivalents) and one administrator, we will place a premium on hiring a staff that is culturally diverse and that reflects the make-up of the student body. The hiring process itself will be open and competitive-- the positions will be advertised and posted in area newspapers and schools, and interested candidates will be strongly encouraged to apply.

The Harbor Charter School will seek candidates who have strong backgrounds in at least one of the following academic areas: science, mathematics; social studies; and English; and who are strong generalists-- people committed to and capable of crossing traditional academic lines to teach and facilitate an interdisciplinary thematic curriculum. While from a practical standpoint certification would be helpful, non-certified teachers with excellent credentials will also be considered. In addition to the above criteria, other considerations for potential Harbor Charter School teachers will include:

- a demonstrated track record as a superior educator
- experience in urban education
- fluency in more than one language
- a working knowledge of current educational pedagogy
- a willingness and the ability to work with the "whole" child

- rich life experiences and multiple interests that may be shared with Harbor students
- professional credentials and experience above and beyond that as an academic teacher (e.g., certification as a school adjustment counselor)
- experience developing curriculum
- a willingness and the ability to work as part of an educational team and to be a learner as well as a teacher
- an interest in teacher-driven research
- a love of learning and a fundamental belief that all children can succeed

Characteristics required of the Harbor Charter School Director, will include, in addition to all of the above:

- a demonstrated track record as a strong and innovative educational leader
- an ability to articulate, orally and in writing, a compelling vision for the Harbor Charter School
- strong interpersonal, supervisory, and management skills

#### *B. Evaluation of teachers and administrators*

We envision the Harbor Charter School as a community of learners in which all of its participants-- administrators, teachers, parents, students, support staff, and community people-- are committed to the concept of continuous learning and reflection. To this end, each staff person will develop an individual plan for his or her own professional development to be used as a barometer of growth. To help each staff person-- including the Director-- reflect upon individual progress towards fulfilling this plan, everyone will be asked to maintain a professional journal. This may also be used by the Director to have an ongoing "written discussion" with each teacher. We believe that it will be important for the Director to be continually in the classroom observing, mentoring, and learning. Therefore, evaluation will be ongoing, with an end-of-the-year written evaluation being but a concentration of the year's dialogue between Director and teacher. The Director, in addition to receiving ongoing feedback from the staff, will

be formally evaluated annually by the Board of Trustees-- though again, discussions between the Board and the Director will be continual.

### *C. Other human resources information*

It is anticipated that staff salaries and benefits will parallel those of the Boston Public Schools, pro-rated to a longer school year. Contracts will be reviewed for renewal annually by the Director and the Board of Trustees. Consistent with the staff evaluation process, feedback will be constant-- serious concerns about staff performance will be discussed at the very earliest stages and plans constructed to remedy them. Dismissal will be seriously explored only after rigorous and continued attempts fail to bring about real change. All dismissals and hirings will be reviewed and approved by the Director and the Board of Trustees.

Staff development will be crucial to the health and growth of the school. Peer training, team building, and the importation of important pedagogical and content-based models that address staff identified needs will be the rule of thumb. A minimum of five hours per week will be set aside for joint planning time and staff development.

## **14.) School Governance**

The school will be managed by the team of teachers and the Director with final authority resting with the Board of Trustees. The Board will be selected by the school's founders, and will be reflective of the various stakeholders. Community members, institutional partners, parents and students will be represented. The initial Board assembled by the founders (and listed on pages 14-16) has been selected to provide educational vision and expertise during the period of school design, as well as to facilitate linkage between the school and key institutional partners. We have begun conversations with the Roxbury Multiservice Agency and the Ecumenical Social Action



committee in Jamaica Plain, to help us identify leaders who would be interested in serving as community representatives on the Board. Both of these are community-based social service organizations, one serving primarily a Hispanic population and one chiefly serving African-Americans. Once the school has been created, we will include on the Board two parents, one student and one teacher, all chosen by their peers. Final Board size will be fifteen to twenty trustees.

While the Board will certainly not get involved with the actual management of the school, it will oversee the school's direction and will be ultimately responsible for school policy, staffing, fiscal soundness, and other crucial issues. When warranted, the Board may be organized into subcommittees around particular issues to lend additional support and guidance to the school's staff. The relationship of the Board to the staff, students, and families needs to be both respectful and supportive, and decision-making needs to be as democratic and consensus driven as possible-- all the while recognizing that the Board has bottom-line responsibility. As well as having their own representatives on the Board of Trustees, parents and students will be invited to participate on the Local School Council, advising the trustees and developing a school improvement plan.

Ultimately, the best way to make this model of inclusion work is to involve all of the stakeholders as intimately as possible in the daily life of the school. To this end, the school is being structured to maximize community involvement in school activities. Extended days and school years, a commitment to involving the community in the education of its children, and an ultimate goal of extending the reach of the school to the parents and the community through adult education and supportive services, will all help to weave the community into the fabric of the school.

## 15. Building Options

Our best present option for a school site is the old Mission High School on Mission Hill. This three-story building served as a parochial high school for up to a thousand students until it closed because of declining enrollment. The Massachusetts College of Pharmacy and Allied Health Sciences is currently leasing the building, and has renovated offices, classrooms, and laboratories on the first and part of the second floor, as well as installing a security system, perimeter lighting, and an upgraded fire alarm system. The College's current lease runs until September 1995; thereafter, college staff and students who currently use the building are planning to move to a new facility. Dr. Sumner Robinson, President of the College (see his letter of support in the appendix), has expressed his interest in exploring with us the feasibility of locating the Harbor Charter School in the building.

We have begun a conversation with the Redemptorist Order, the building's owners, who are anxious not to let the building remain empty. As it is currently zoned for educational use, its owners are very open to the idea of leasing or even selling it to the Harbor School.

This facility would meet the needs of the Harbor Charter School in several ways. It is within walking distance of Wentworth and Northeastern, and only one T-stop away on the Orange Line. It will be even closer to the satellite clinics being planned for Mission Hill and Roxbury Crossing by the Whittier Street Health Center. The building is set up as a school, with large airy classrooms, a library, bathrooms at both ends of the halls, a potential assembly room and a small gymnasium in the basement, and two fine laboratories on the first floor. The building is large enough to accommodate the Harbor Charter School's growth as new grade levels are added. And the school is large enough, with attractive offices on the first floor, that our ultimate goal of having social service and community agencies located on the school

premises becomes a real possibility.

As mentioned above, this building is likely to be available either for lease or for purchase. Our preference would be to purchase the school, but we have not yet explored the finances of doing so. One possible approach would be to secure a low-interest loan, raise the money for a down payment, and, if zoning laws permit, rent out space within the building to social service agencies whose goals are synergistic with the school's. Rental income could then help offset mortgage payments and renovation costs.

Although the Mission High building is our leading option at present, we plan to actively explore other possible sites within approximately a one-mile radius of Wentworth and Northeastern. A projected timeline for our building search is as follows:

<b>March 1994</b>	Meet with David Ellis, Sumner Robinson (president of the Massachusetts College of Pharmacy and Allied Health Sciences, John Curry (President of Northeastern University), and appropriate trustees to discuss building options, considering both short and long term solutions.
-------------------	---

<b>April-May 1994</b>	Identify several possible sites. Prioritize on the basis of location, rental and renovation costs, and ability to accommodate the growth of the school over its first five years. Compare costs of rental and purchase.
-----------------------	---

<b>May-June 1994</b>	Develop financing plan for rental or (preferably) purchase.
----------------------	---

<b>May-November 1994</b>	Negotiate final agreement for the site.
--------------------------	---



## **Appendix**

# **Letters of Support**

BOARD OF DIRECTORS

OFFICERS

**Chairman**  
Joseph R. Oldfield  
Polaroid Corporation

**President**  
Marshall J. Milner  
IBM Northern New  
England Services

**Vice President Finance  
and Treasurer**  
Joel Y. Kamya  
Boston Edison Company

**Vice President for  
Development**  
John G. Cook  
Consultant

**Vice President  
Industrial Relations**  
James Long, Jr.  
General Electric Company

**Vice President  
Parent/Community  
Relations**  
J. J. Jackson  
Massachusetts Institute of  
Technology

**Vice President—  
Programs**  
Thomas E. Hulbert  
Northeastern University

EX OFFICIO

Joyce P. Newhouse  
Executive Director

MEMBERS

Melanie Barron  
Cambridge Public Schools

Thomas D. Bushman  
Executive Service Corps of  
New England

John G. Bynoe  
Attorney-at-Law

Norman J. Conklin  
Roxbury Integrated Systems

Michael G. Contompasis  
Boston Latin School

Carrie N. Dickens  
Davis Education &  
Research Assoc.

Sixto Escobar  
Mansol Enterprises

Anita D. Howard  
Tufts University

John R. Jenkins  
Polaroid Corporation

Jerald L. Johnson  
New England Telephone  
Company

Stacy Johnson  
Charlestown High School

Thomas J. Kerr  
Boston University

Robert H. Minetti  
Bentley College

Mary Grassa-O'Neill  
Milton Public Schools

Neil L. Rudenstine  
Harvard University

Timothy L. Schultz  
Raytheon Company

Joseph J. Smith  
Boston Public Schools

John F. Van Domelen  
Wentworth Institute of  
Technology

Donna M. Walker  
Tufts University

Clarence G. Williams  
Massachusetts Institute of  
Technology

Reynolds Winslow  
University of  
Massachusetts

# MassPEP, Inc.

## MASSACHUSETTS PRE-ENGINEERING PROGRAM

February 10, 1994



Dr. Michael B. Silevitch, Director  
Center for the Enhancement of Science and  
Mathematics Education  
Northeastern University  
360 Huntington Avenue  
Boston, MA 02115

Dear Dr. Silevitch:

The Executive Committee of the Massachusetts Pre-Engineering Program (MassPEP, Inc.) fully endorses the proposal for the Harbor Charter School of Science and Mathematics in Boston.

MassPEP is a unique collaboration of industry, schools of higher education, public school systems, and community groups working together to increase the number of underrepresented students entering and succeeding in math, science and technical careers. For the past fourteen years we have worked to ensure that students possess the technical literacy to compete in a global economy. Our success speaks for itself. Each year more than 90% of our graduating seniors enter college. More than 70% major in engineering, science, or math related areas.

We are dedicated to bringing the resources of the aforementioned groups together to enrich the total educational experience of public school students.

While MassPEP actively collaborates with a number of programs and organizations, resources often restrict our ability to work with students, their families, and the community in a comprehensive manner. The Harbor School would provide a structure for parents, teachers, and other interested parties to work towards a shared vision and significantly improve the education of their students.

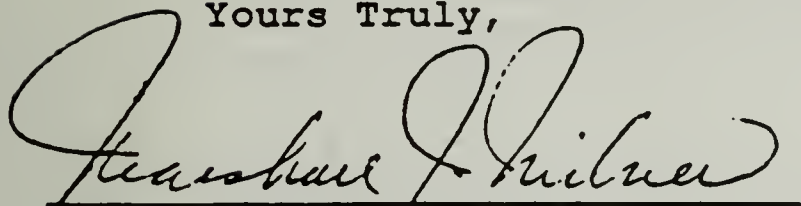
MassPEP is ready to assist the school with the following:

1. An after school math and science program using tested curricula for students and parents.
2. Mentors and role-models drawn from the ranks of our participating industrial partners.
3. Access to laboratories and computer facilities.
4. Peer coaches, tutors and student teachers drawn from the ranks of MassPEP participants.

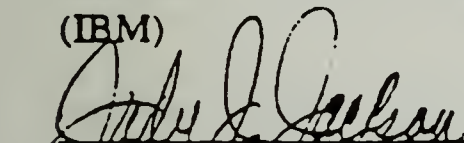
5. Career development opportunities for teachers, students and parents.

As an organization dedicated to preparing youth for technical careers, we are excited about the possibility of working closely with the new Harbor Charter School in Boston.

Yours Truly,



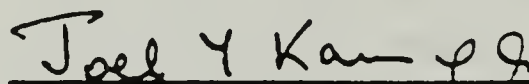
Marshall J. Milner, President  
(IBM)



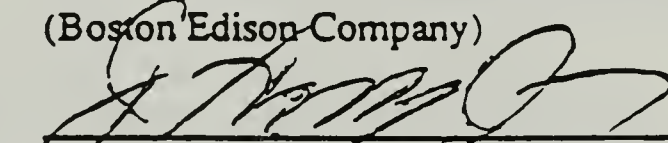
J. J. Jackson, V. P. Parent/Community Relations  
(M.I.T.)



Thomas E. Hulbert, V.P. Programs  
(Northeastern University)



Joel Y. Kamya, V. P. Finance & Treasurer  
(Boston Edison Company)



James Long, Jr., V. P. Industrial Relations  
(General Electric Company)



John G. Cook, V.P. Development  
(J. G. Cook Consultants)



Office of the President

February 14, 1994

Dr. Piedad Robertson  
Secretary of Education  
Att: Charter Schools  
Executive Office of Education  
The Commonwealth of Massachusetts  
One Ashburton Place, Room 1401  
Boston, Massachusetts 02108

Dear Secretary Robertson:

I am writing to express my strong support for the proposed Harbor School of Boston, a grade 6-12 charter school emphasizing math, science and technology. I soundly endorse the mission and philosophy on which the school is founded; but the strength of my support is based on another, equally important consideration. It is critical that the first cohort of charter schools be founded by groups who have demonstrated their commitment to public education and who can point to a track record of successfully creating and managing complex organizations. In past work done both together and separately, the founders of the Harbor School have demonstrated this commitment and capacity.

As Executive Director of MassPEP, Joyce Newhouse has managed a large collaborative venture to improve the preparation of women and minorities in mathematics and science. She has strong ties to the community, the schools, and the business world. Penny Noyce is a founding trustee of a national foundation dedicated to improving K-12 public education. She brings with her substantial information resources, experience in helping to guide and troubleshoot projects, and ties to national educational reform efforts. Michael Silevitch, of whom I can speak with the most direct personal experience, is a visionary leader and skilled team-builder who is passionate about public education. At Northeastern he built and continues to manage the Center for Electromagnetics Research, a nationally recognized industry-university-government research collaborative. He founded the Young Scholars Program, which places high school students in Northeastern labs; Project SEED, a middle school science teacher enhancement program; and CESAME, the Center for the Enhancement of Science and Mathematics Education, which over the past two years has made over \$200,000 in grants to innovative science and math teachers across the Commonwealth. In addition, Michael is co-Principal Investigator for Project PALMS, a \$10 million dollar five-year NSF funded project to improve math and science education in Massachusetts. All of these projects have attracted NSF funding; all of them continue to thrive and grow. In each of these efforts Michael was able to bring his vision to life by building bridges to the education community and channeling the creative energies of a strong team.

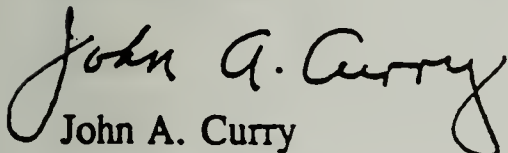
Because of my enthusiasm for the Harbor School's philosophy and my confidence in its founders, I am prepared to make the following commitments:

Dr. Piedad Robertson  
February 14, 1994  
Page Two

1. As outlined in the proposal, Northeastern will provide tuition-free access to courses for all members of the Harbor School's faculty and staff. We will also offer every Harbor student free enrollment in at least one Northeastern course before graduation.
2. I will support the school's efforts to work with Northeastern's Admissions Office to develop graduation criteria for Harbor students which will automatically confer admission to Northeastern upon their graduation. In keeping with the intention of the school's founders, we will consider whatever admissions standards we develop as a model to be extended to students throughout the Boston Public Schools. Graduates who are admitted will of course have full opportunities to apply for financial aid.
3. I am willing to explore the feasibility of having Harbor School students use university facilities such as libraries, laboratories, or athletic facilities, providing availability and liability issues can be resolved.
4. We will move to involve Northeastern undergraduates in providing tutoring or in running mini-courses or extracurricular activities for Harbor students; and Northeastern will explore the possibility of assigning work-study funds or academic credit to undergraduates who do this work.
5. Northeastern will offer to place student teachers in the Harbor School for their teaching internships.

In summary, I heartily endorse the notion, laid out in the Harbor School application, that charter schools have an obligation to support, not undermine, public education. It is my confident belief that the founders of the Harbor School will fulfill that obligation.

Sincerely,

  
John A. Curry  
President

JAC:cam

Sumner M. Robinson, Ph.D.  
President

February 15, 1994

Michael B. Silevitch  
Director for the Center of  
Electromagnetic Research  
Professor of Electrical Engineering  
Northeastern University  
235 Forsyth Building  
Boston, MA 02115

Massachusetts  
College of Pharmacy  
and Allied Health  
Sciences

179 Longwood Avenue  
Boston, Massachusetts 02115  
Telephone: 617.732.2800  
Facsimile: 617.732.2800

Dear Professor Silevitch:

I enjoyed speaking with you and learning about your activities in starting the Harbor Charter School of Science and Math.

The Massachusetts College of Pharmacy and Allied Health Sciences would like to explore the feasibility of having the program based at the Mission High School on Mission Hill. Such a program would be consistent with our endeavors and commitment to the residents of Boston.

I believe that several of our faculty would be excited about the possibilities in assisting the development of this program, establishing admissions criteria for students who might be interested in attending our school, and assisting your faculty by making available to them undergraduate and/or graduate courses at our facility. We have several scholarships available to residents in the Mission Hill area, such as the Carol diMaiti Stuart Scholarship.

Please call my office to arrange for a suitable meeting time for me and Charles Monahan, Chairman of the Board of Trustees.

Sincerely,



Sumner M. Robinson

SMR/cc







## Museum of Science

February 14, 1994

Dr. Michael Silevitch  
Center for the Enhancement of  
Science and Mathematics Education  
Northeastern University  
Boston, MA 02115

FAX: 617-373-8627

Dear Michael:

I appreciated the opportunity to read the proposal for The Harbor School of Science and Mathematics and was impressed by many aspects of your thinking. There would be advantages to many of the approaches you describe, and I applaud your work and that of Penny and others to put something like this together. I appreciate your asking me if I would be willing to serve as a Trustee, and I am pleased to do so.

Three points deserve specific mention. The location of the school is an important issue, and I concur heartily in your desire to find a site near the Wentworth Institute and Northeastern University. If I can be of help in this I would be pleased to do so. I also strongly approve of your plan to have a school where the students are representative of the community at large. Lastly, I endorse as well the concept of a longer school year.

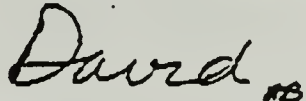
It was also helpful to know of your desire for the Museum to have some form or forms of involvement and I appreciate your asking me to think some about that. Within your focus on grades 6 through 12, there are a number of specific programs designed for young people in the middle school years. These utilize "hands on" or "discovery" learning and might be of interest to those planning the curriculum (broadly defined). I could also mention family courses, though those are traditionally offered for students and parents only up through grades 4 or 5, but it would not be too much of a stretch to develop them for grades, say, 6 and 7, or 6, 7 and 8, if it were deemed important to find a way to bring parents into a better understanding of what their children were doing such that they could be supportive of those efforts. Also, we run a program on Penobscot Bay in Maine for teenagers. This program has been popular and would provide a very special learning experience, offsite, in a setting that is unusual, but which very well displays

Dr. Michael Silevitch  
February 14, 1994  
Page 2

numerous aspects of science that would be different and, I believe, exciting for city youth. One last thought comes to mind and that is that as the school progresses and there are older students, they might wish to be involved with various of our interpretation programs here at the Museum, work with young visitors (all second graders and all fifth grades of the City of Boston come here each year) or in other ways take on learning/teaching/explainer roles. I could go on but the fact is that the best approach would likely be for some of our people to meet with those persons developing the curriculum and through that means find those places where the involvement of the Museum would be most effective.

I certainly wish you and your colleagues the best in this and look forward to participating, both personally and, I hope, for the Museum as well.

Sincerely,

A handwritten signature in cursive script that reads "David".

David W. Ellis  
President and Director





# WHITTIER STREET NEIGHBORHOOD HEALTH CENTER

20 WHITTIER STREET

ROXBURY, MASSACHUSETTS 02120

Phone: (617) 427-1000

Fax: (617) 427-0949

---

February 14, 1994

Piedad F. Robertson  
Secretary of Education  
One Ashburton Place, Room 1401  
Boston, MA 02108

Dear Dr. Robertson:

This letter is to affirm the Whittier Street Health Center's commitment to collaborating with the proposed Harbor Charter School of Science and Mathematics. Our health center has a long tradition of reaching out to the community and to local schools, and we see this collaboration as an opportunity to expand our outreach and develop innovative new approaches to improving the health of adolescents and their families.

Although our conversations with the founders of the Harbor Charter School are still in an early phase, we are actively exploring several options for our collaboration.

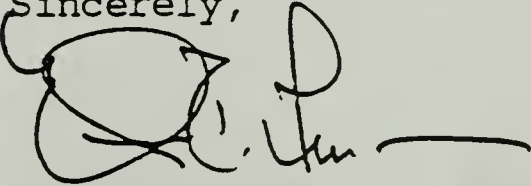
1. The Whittier Street Health Center will provide easy access to health care for students of the Harbor School and their families, and will respond quickly to referrals from the school for medical care, dental care or optometry services for students.
2. Health center staff will work with school staff and students to develop exciting and effective multidisciplinary units centered around health care and healthy decision-making.
3. The health center will offer volunteer opportunities and, if funding permits, some paid internships to qualified students.
4. Health center staff will be encouraged, on a volunteer basis, to participate in career awareness activities with students, or in some cases to act as mentors to students.



Dr. Robertson  
Secretary of Education  
Page 2

We are excited about our continuing conversation with the Harbor School. I would be happy to serve on the school's board of trustees as the representative both of the health center and of the community.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Elmer R. Freeman', with a long horizontal flourish extending to the right.

Elmer R. Freeman  
Executive Director

ERF/ac

Center for Innovation in Urban Education

February 15, 1994

To Whom It May Concern:

I am delighted to write indicating my enthusiastic support for the proposal for the Harbor Charter School of Science and Mathematics. I think that there are several reasons why this is an outstanding proposal. If approved, this school will serve the youth who are taught in the school and will also serve as a model which will improve the quality of many other schools in Boston and beyond.

The heart of the Harbor Charter School proposal is a program of high standards and high expectations which is open to all. This school avoids the easy route of serving only the "best and brightest" and then claiming success. The admissions process is clearly open and inviting to all. At the same time, students in the school will be held to high standards but supported in succeeding in meeting those standards. The focus on science and mathematics will provide a clear core to the curriculum and the work of the students and faculty.

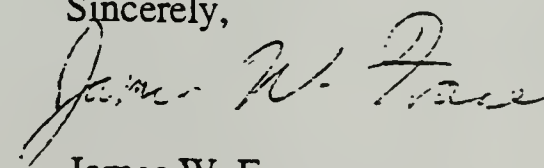
At the same time, the clear link between this school and Northeastern University and other institutions of higher education guarantees the success of this venture. Under the leadership of Michael Silevitch and his colleagues, Northeastern has emerged as one of the leaders in applying the most advanced work in science and math to the instructional life of schools. Project PALMS, Project NUPRIME and others have helped hundreds of public school teachers become better teachers of science and mathematics. Now the people who designed these programs are proposing to work directly with youth through the Harbor Charter School. The results will be significant.

At the same time, the organizers of the Harbor Charter School have worked hard to develop a school proposal which is truly replicable. They have designed a program which will support the teachers who work in the school fully. The opportunities for professional development will allow these teachers to make a long term commitment to the school. If other schools follow this model, the teaching profession as a whole will also be strengthened.

The Center for Innovation in Urban Education, which I direct, is involved with many different urban schools and school reform efforts. If the Harbor Charter School is approved, we certainly plan to work closely with the school and to use our own network to disseminate the results of the Harbor School's efforts.

As a powerful school in its own right and as a model for school reform here and elsewhere, I support the Harbor Charter School of Science and Mathematics fully. I hope that this proposal is accepted and I look forward to a close and fruitful collaboration between Northeastern University and the school in the years ahead.

Sincerely,



James W. Fraser  
Professor of Education and History  
Director, Center for Innovation in Urban Education

